(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
24 July 2003 (24.07.2003)

PCT

(10) International Publication Number
WO 2003/060831 A3

(51) International Patent Classification[7]: G07C 5/00, G06F 17/60

(21) International Application Number: PCT/US2002/040760

(22) International Filing Date: 20 December 2002 (20.12.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/342,292	21 December 2001 (21.12.2001)	US
60/360,479	28 February 2002 (28.02.2002)	US
60/388,451	13 June 2002 (13.06.2002)	US

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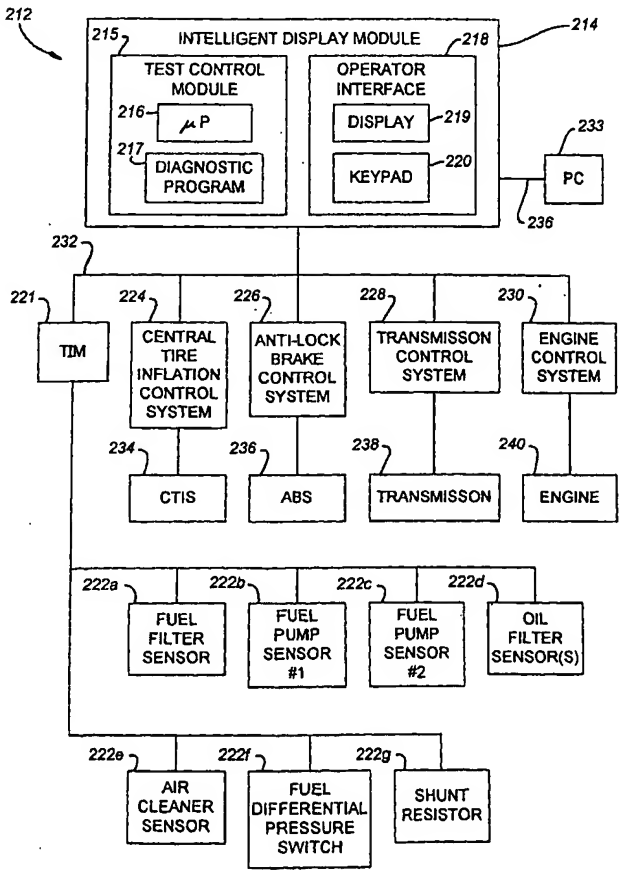
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

[Continued on next page]

(54) Title: EQUIPMENT SERVICE VEHICLE WITH REMOTE MONITORING



(57) Abstract: A system comprises an equipment service vehicle and an off-board computer system. The equipment service vehicle further includes a power source, a power transmission link, a plurality of input devices, a plurality of output devices, and an on-board computer system. The on-board computer system further includes a plurality of microprocessor-based interface modules and a communication network. The plurality of interface modules are coupled to the power source by way of the power transmission link and are interconnected to each other by way of the communication network. Each of the plurality of interface modules is coupled to respective ones of the plurality of input devices and the plurality of output devices by way of respective dedicated communication links. The on-board computer system stores I/O status information for the plurality of input devices and the plurality of output devices. The on-board computer system transmits at least some of the I/O status information by way of a wireless radio-frequency communication link to the off-board computer system.

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ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
4 March 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/40760

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G07C5/00 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G07C G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01 15001 A (GEN ELECTRIC) 1 March 2001 (2001-03-01) abstract; figures 1,2 page 2, line 7 - line 20 page 3, line 17 -page 5, line 26 page 6, line 14 -page 7, line 7 page 7, line 20 - line 25 page 8, line 4 - line 22 page 9, line 3 - line 18 page 10, line 16 - line 26 page 11, line 20 - line 30 page 12, line 6 - line 28 page 13, line 10 - line 22 page 14, line 4 - line 11 page 17, line 7 - line 15 page 18, line 8 - line 26 page 19, line 18 -page 20, line 11 --- -/--	1-11

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 September 2003	12. 12. 03

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Bauer, R

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/40760

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 732 074 A (BRAITBERG MICHAEL F ET AL) 24 March 1998 (1998-03-24) abstract; figures 1,3 column 1, line 1 - line 40 column 2, line 10 -column 5, line 19 column 7, line 5 - line 47 column 8, line 1 - line 11 column 8, line 40 -column 9, line 62 column 10, line 10 - line 29 column 11, line 30 - line 36 column 11, line 58 -column 12, line 38 column 12, line 65 -column 13, line 23 column 14, line 13 - line 16 ---	1-11
X	WO 00 79727 A (NATHANSON MARTIN ;PAXGRID TELEMETRIC SYSTEMS INC (CA); NADER FREDE) 28 December 2000 (2000-12-28) abstract; figures 3,7,9 page 5 page 11 -page 12 page 14 -page 16 page 22, line 22 - line 27 page 29, line 16 - line 23 page 33, line 9 -page 35, line 18 page 36, line 19 -page 37, line 16 page 39, line 20 -page 40, line 10 page 41, line 16 -page 43, line 8 page 45, line 8 - line 20 page 51, line 4 - line 21 ---	1-11
X	WO 99 23783 A (SNAP ON TECH INC) 14 May 1999 (1999-05-14) abstract; figures 4-6 page 4 page 13, line 1 -page 14, line 19 page 15, line 27 -page 16, line 20 ---	1-11
A	US 6 285 932 B1 (BRENNAN JOHN C ET AL) 4 September 2001 (2001-09-04) abstract; figure 1 column 1 column 4, line 8 - line 26 ---	1-11
A	MUSSAF J S: "The Space Shuttle Clickable Map" INTERNET, 1 April 2001 (2001-04-01), XP002235111 Retrieved from the Internet: <URL:http://web.archive.org/web/2001040101 1124/http://seds.lpl.arizona.edu /ssa/docs/S> [retrieved on 2003-03-18] the whole document -----	1-11

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-11

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-11

Sensors on a vehicle give status or performance information to an on-board computer, which transmits some of those information to an off-board computer by way of RF communications. The status or performance information of the vehicle is made available via a web site/ a web server. The problem dealt with is the one of finding an efficient way of making the status / performance information available.

2. Claims: 12-17

A fleet of vehicle is managed. Each vehicle has sensors which give information to an on-board computer. Each on-board computer transmits information to a data center. The data center is able to generate different reports concerning usage or performance data of the fleet. The objective problem dealt with is the generation of reports from a plurality of data.

3. Claims: 18-22, 27-28, 29

Sensors on a vehicle give status or performance information to an on-board computer, which transmits some of those information to an off-board computer by way of RF communications.
The off-board computer is able to send requests to the on-board vehicle to get more information / perform tests.
The problem dealt with is the one of effecting remote diagnostics.

4. Claims: 23-26

Sensors on a vehicle give status or performance information to an on-board computer, which transmits some of those information to an off-board computer by way of RF communications.
The off-board computer is able to transmit a software upgrade to the on-board computer.
The problem dealt with is the one of the remote upgrading of software.

INTERNATIONAL SEARCH REPORT

[redacted]ormation on patent family members

International Application No
PCT/US 02/40760

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